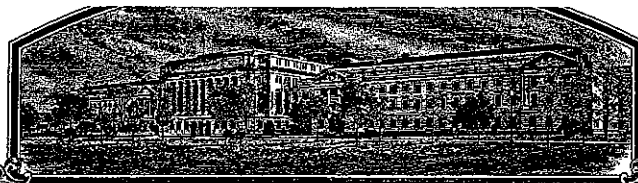


No.

200400244



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Regents of the University of California

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR ANY OTHER VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED, (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (24 STAT. 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

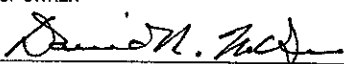
Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER <b>The Regents of the University of California</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <b>UC 1361</b>		3. VARIETY NAME <b>'Clear White'</b>	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>University of California 1111 Franklin Street, 12th Floor Oakland, California 94607-5200</b>		5. TELEPHONE (include area code) <b>(510) 587-6000</b>		FOR OFFICIAL USE ONLY PVPO NUMBER <b>200400244</b> FILING DATE <b>June 18, 2004</b>	
		6. FAX (include area code) <b>(510) 587-6090</b>			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>Corporation</b>		8. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>California</b>		9. DATE OF INCORPORATION <b>1868</b>	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <b>Michael R. Ward Morrison &amp; Foerster LLP 425 Market Street San Francisco, California 94105-2482</b>				FILING AND EXAMINATION FEES: \$ <b>3652.00</b> DATE <b>6/18/2004</b> CERTIFICATION FEE: \$ <b>432.00</b> DATE <b>9/24/2004</b>	
11. TELEPHONE (include area code) <b>(415) 268-6237</b>		12. FAX (include area code) <b>(415) 268-7522</b>		13. E-MAIL <b>MWard@mofo.com</b>	
14. CROP KIND (Common Name) <b>Wheat</b>		16. FAMILY NAME (Botanical) <b>Poaceae</b>		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP <b>Triticum aestivum</b>		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23) 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED <b>SEE ADDENDUM FOR FOUNDATION</b>	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER 		SIGNATURE OF OWNER	
NAME (Please print or type) <b>DAVID R. MCGEE</b>		NAME (Please print or type)	
CAPACITY OR TITLE <b>*Interim Director, Technology Transfer</b>	DATE <b>* 6/11/04</b>	CAPACITY OR TITLE	DATE

(See reverse for instructions and information collection burden statement)

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

**Plant Variety Protection Office**

**Telephone: (301) 504-5518**

**FAX: (301) 504-5291**

**Homepage: <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>**

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

#### ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;  
(2) the details of subsequent stages of selection and multiplication;  
(3) evidence of uniformity and stability; and  
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:  
(1) identify these varieties and state all differences objectively;  
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and  
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

**22. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

\* See Addendum

**23. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

**24. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**ADDENDUM TO ST-470: Item No. 22.**

Foundation seed will not be limited to the number of generations. Foundation seed will be maintained solely by the University of California Foundation Seed Program. Registered seed will only be produced from Foundation seed.

## "Clear White"

**Exhibit A: Origin (Parentage) and Breeding History**

1) Parentage: Female parent: UC366/Yecora Rojo Male parent: Klasic

Please see **Appendix A** for pedigree of Clear White. Clear White can be traced back to Nainari 60, Brevor and Norin 10, all of which are publicly available from the National Plant Germplasm Center.

2) Breeding History

A) Stages of selection and multiplication

- An F<sub>1</sub> sibling of UC366/Yecora Rojo was crossed with Klasic in 1982, creating the three-way hybrid CA820094.
- Nineteen F<sub>1</sub> seeds from this three-way hybrid were planted during the summer of 1982.
- Seeds from a single F<sub>1</sub> plant (#4) was harvested and advanced to the F<sub>2</sub> generation.
- Bulk populations of F<sub>2</sub> through F<sub>10</sub> generation seed were grown in Davis from 1983 through 1996.
- 136 individual heads were selected from the F<sub>10</sub> bulk population in 1996 and planted in single F<sub>11</sub> family headrows in 1998.
- 13 headrows were selected and the F<sub>12</sub> seed was advanced as 13 unique small plot entries in a single-rep observation trial planted in 1999.
- Four siblings from the original 13 observation plots were selected and advanced to a 3-rep, small plot preliminary white wheat yield trial grown in 2000.
- One sibling line was selected and advanced to multilocation elite and regional testing in 2001.
- 1000 headrows of this line were harvested as bulk seed designated as Breeders Seed Class in 2002.

B) Selection criteria

The plants were selected based on observation of the plants in the field, and objective yield and laboratory data. The following selection criteria were used:

1. Early flowering.
2. Good agronomic appearance.
3. High yield and adequate (12.4 % average) protein values.
4. Resistance to lodging and shattering.
5. Disease resistance.
6. Desirable glutenein protein subunits: 1, 17 +18, and 5+10.
7. Low polyphenol oxidase (PPO) levels, which are desirable for noodle production.

## "Clear White"

C) Characteristics by which the application variety can be distinguished from the direct parents:

1. Clear White has very low PPO activity whereas Klasic and Yecora Rojo have high PPO activity.
2. Clear White is resistant to stripe rust whereas Yecora Rojo and Klasic are susceptible.
3. Clear White is 9 cm taller than Klasic.
4. Clear White has white grains whereas UC366 and Yecora Rojo have red grains.

D) Statement concerning whether the variety is uniform and stable and how many generations the variety has been observed to determine this.

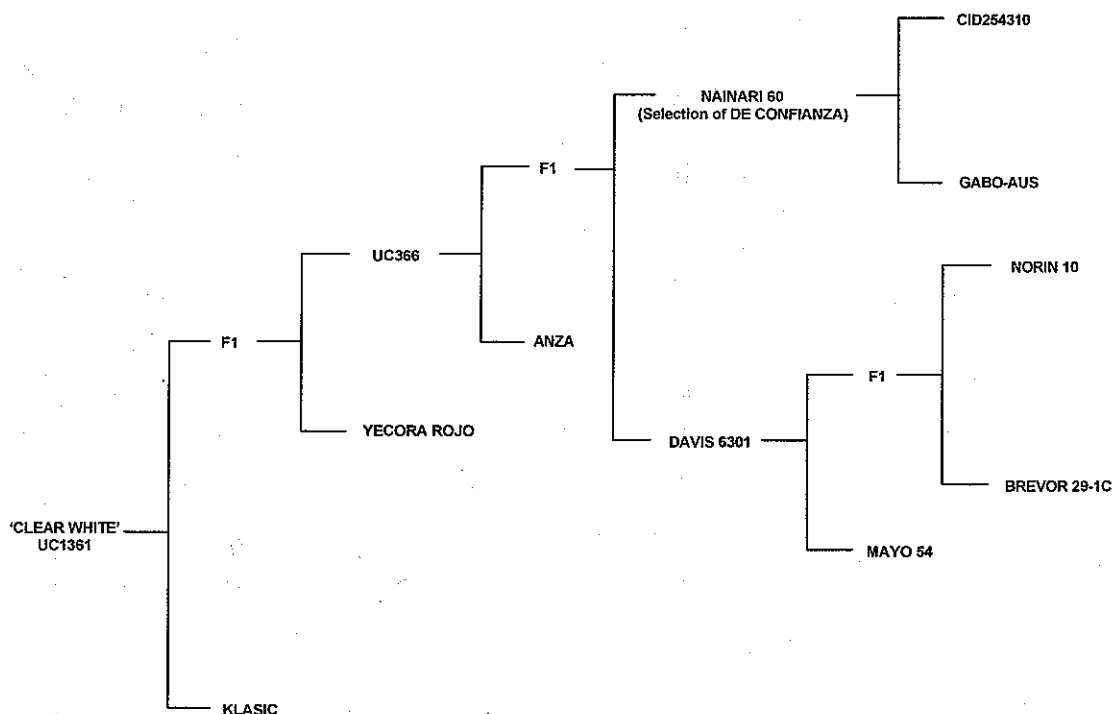
- Variety Clear White is uniform for all traits as described in Exhibit C (Objective Description of Variety).
- Variety Clear White has been reproduced and judged stable for the past four generations.
- Variety Clear White was stable in all generations of Advanced, Elite and regional field testing, as well as during the production of Breeder's Seed and Foundation Seed.

E) Statement concerning whether there are genetic variants that are to be expected during normal maintenance of the variety, the description of the variants, and their frequency.

- Variety Clear White shows the following variant frequency: Plants one to two heads taller and with longer glume-awns than the predominant plants have been found with a frequency lower than one in 5,000 plants. Red grains are sometimes observed, with a frequency lower than one red grain in 5,000 white grains.

## "Clear White"

## Appendix A – Pedigree for Clear White

**NOTE:**

**UC366** is a line developed by the UC Davis Wheat Breeding Program.

**Yecora Rojo** is a variety developed by the International Maize and Wheat Improvement Center, CIMMYT- Mexico

**Klasic** is a variety released by the Northrup-King company.

The following varieties can be obtained at the National Plant Germplasm Center:

**Nainari 60** (Citr 13747)

**Mayo 54** (Citr 13585)

**Norin 10** (PI 156641)

**Brevor** (Citr 12385)

## "Clear White"

**Exhibit B: Statement of Distinctiveness****Summary:**

1) The most similar previously existing varieties are Klasic, Blanca Grande and Plata. These are the only hard white varieties currently being grown in California.

- Clear White has better resistance to stripe rust than Klasic.
- Clear White is 9 cm taller than Klasic.
- Clear White has significantly lower lodging than Klasic.
- Clear White has significantly higher test weight than Klasic.
- Clear White has low polyphenol oxidase activity whereas Klasic, Blanca Grande, and Plata have high PPO activity.

2) and 3) Clear White is a hard white spring wheat (HWS). Clear White has a recurved flag leaf and a middense spike with long awns. The glumes are large, wide and acuminate with a rounded shoulder. It has oval white seeds with a long brush that extends partly over the sides of the kernel along the crease.

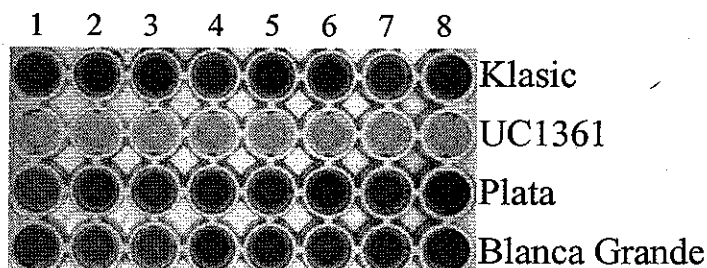
The characteristics that clearly distinguish Clear White from Klasic, Blanca Grande, and Plata are as follows:

**a) Heading and stature**

- Clear White is a medium-stature variety approximately 11 cm taller than Klasic and of similar height as Blanca Grande and Plata.
- Clear White has an early season heading time that is approximately 5 days earlier than Plata
- Clear White has an early season heading time that is approximately two days later than Blanca Grande and Klasic.
- Clear White has a better resistance to stripe rust than Klasic, and similar to Blanca Grande and Plata.

**b) Low Polyphenol Oxidase Activity**

Clear White can be easily differentiated from all the other HWS varieties currently grown in California (Blanca Grande, Plata and Klasic) by its low polyphenol oxidase activity. When seeds of these last three varieties are soaked in a 0.001 M solution of disodium tyrosinate in 0.1 M Tris-HCl buffer (pH9.0), the liquid substrate and the seeds turn black within three hours. On the contrary, the substrate and the seeds of Clear White remain clear.



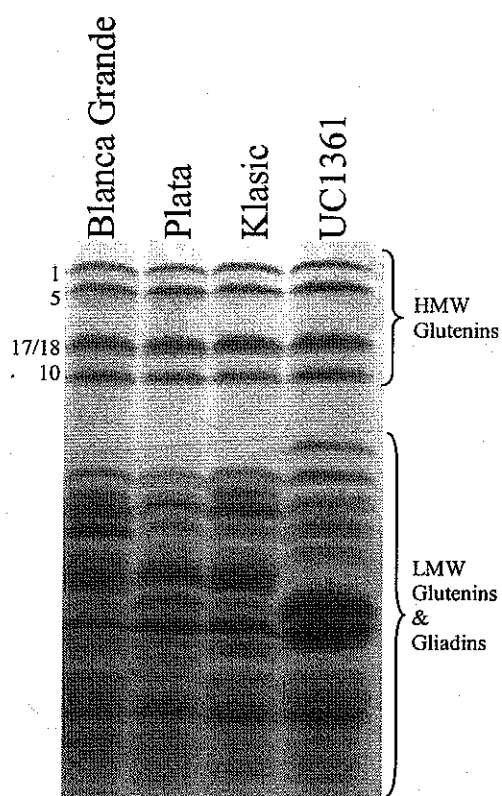


"Clear White"

Fig. 1. Polyphenol oxidase reaction for 8 grains from each variety

### c) Low Molecular Weight Glutenin and Gliadin Content

The HMW-glutenin electrophoresis pattern of Clear White is identical to Klasic, Blanca Grande and Plata. All these varieties show subunits 1, 17+18, and 5+10. However, the low molecular weight glutenin and gliadin region of the SDS-PAGE gel can be easily used to differentiate Clear White from all the other HWS varieties currently grown in California.



**Fig. 2.** Total protein analyzed by SDS-PAGE (10%). Upper bands correspond to the high-molecular weight (HMW) glutenins and the lower bands to the low-molecular weight (LMW) glutenins and gliadins

**REPRODUCE LOCALLY. Include form number and date on all reproductions.**

Instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

EXHIBIT C  
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY  
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
The Regents of the University of California	PVPO NUMBER 200400244
ADDRESS (Street and No. or RD No., City, State, and Zip Code)	VARIETY NAME 'Clear White'
University of California 1111 Franklin Street, 12 th Floor Oakland CA 94607-5200	TEMPORARY OR EXPERIMENTAL DESIGNATION UC1361

**PLEASE READ ALL INSTRUCTIONS CAREFULLY:** Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.  or ) when number is either 99 or less or 9 less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: NA

Please answer all questions for your variety; lack of response may delay progress of your application.

## 1. KIND:

- 1=Common  
2=Durum  
3=Club  
4=Other (SPECIFY): \_\_\_\_\_

## 2. VERNALIZATION:

- 1=Spring  
2=Winter  
3=Other (SPECIFY): \_\_\_\_\_

## 3. COLEOPTILE ANTHOCYANIN:

- 1=Absent 2=Present

## 4. JUVENILE PLANT GROWTH:

- 1=Prostrate 2=Semi-erect 3=Erect

## 5. PLANT COLOR (boot stage):

- 1=Yellow-Green  
2=Green  
3=Blue-Green

## 6. FLAG LEAF (boot stage):

- 1=Erect  
2=Recurved  
  
 1=Not Twisted  
2=Twisted  
  
 1=Wax Absent  
2=Wax Present

## 7. EAR EMERGENCE:

- Number of Days (Average)  
 Number of Days Earlier Than PLATA \*  
Same as \_\_\_\_\_ \*  
 Number of Days Later Than BLANCA GRANDE or KLASIC \*

\* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

## 8. ANTHOR COLOR:

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- ☒ 1=Yellow  
☐ 2=Purple

## 9. PLANT HEIGHT (from soil to top of head, excluding awns):

☐ ☒ ☐ 9 ☐ 6 cm (Average)

☐ ☒ 0 ☐ 9 cm Taller Than KLASIC \*

Same as PLATA \*

☐ ☒ 0 ☐ 2 cm Shorter Than BLANCA GRANDE \*

## 10. STEM

## A. ANTHOCYANIN

- ☒ 1=Absent  
☐ 2=Present

## B. WAXY BLOOM

- ☒ 2 1=Absent  
☐ 2=Present

C. HAIRINESS  
(last internode of rachis)

- ☒ 2 1=Absent  
☐ 2=Present

## D. INTERNODE

- ☒ 1 1=Hollow 2=Semi-solid 3=Solid  
☐ Number of Nodes

## E. PEDUNCLE

- ☒ 3 1=Erect 2=Recurved 3=Semi-erect  
☒ ☒ 1 ☐ 8 cm Length

## F. AURICLE

- ☒ 1 Anthocyanin 1=Absent 2=Present  
☒ 2 Hair 1=Absent 2=Present

## 11. HEAD (at Maturity):

## A. DENSITY

- ☒ 2 1=Lax  
 2=Middense (Laxidense)  
 3=Dense

## B. SHAPE

- ☒ 1 1=Tapering  
 2=Strap  
 3=Clavate  
 4=Other (SPECIFY): \_\_\_\_\_

## C. CURVATURE

- ☒ 2 1=Erect  
 2=Inclined  
 3=Recurved

## D. AWNEDNESS

- ☒ 4 1=Awnless  
 2=Apically Awnletted  
 3=Awnletted  
 4=Awned

200400244

## 12. GLUMES (at Maturity):

## A. COLOR

- ☐ 1=White  
☐ 2=Tan  
☐ 3=Other (SPECIFY): \_\_\_\_\_

## B. SHOULDER

- ☐ 1=Wanted 2=Oblique  
☐ 3=Rounded 4=Square  
☐ 5=Elevated 6=Apiculate  
☐ 7=Other (SPECIFY): \_\_\_\_\_

## C. SHOULDER WIDTH

- ☐ 1=Narrow  
☐ 2=Medium  
☐ 3=Wide

## D. BEAK

- ☐ 1=Obtuse  
☐ 2=Acute  
☐ 3=Acuminate

## E. BEAK WIDTH

- ☐ 1=Narrow  
☐ 2=Medium  
☐ 3=Wide

## F. GLUME LENGTH

- ☐ 1=Short (ca. 7mm)  
☐ 2=Medium (ca. 8mm)  
☐ 3=Long (ca. 9mm)

## G. WIDTH

- ☐ 1=Narrow (ca. 3mm)  
☐ 2=Medium (ca. 3.5mm)  
☐ 3=Wide (ca. 4mm)

## 13. SEED

## A. SHAPE

- ☐ 1=Ovate  
☐ 2=Oval  
☐ 3=Elliptical

## B. CHEEK

- ☐ 1=Rounded  
☐ 2=Angular

## C. BRUSH

- ☐ 1=Short ☐ 1=Not Collared  
☐ 2=Medium ☐ 2=Collared  
☐ 3=Long

## D. CREASE

- ☐ 1=Width 60% or less of Kernel  
☐ 2=Width 80% or less of Kernel  
☐ 3=Width Nearly as Wide as Kernel

- ☐ 1=Depth 20% or less of Kernel  
☐ 2=Depth 35% or less of Kernel  
☐ 3=Depth 50% or less of Kernel

## E. COLOR

- ☐ 1=White  
☐ 2=Amber  
☐ 3=Red  
☐ 4=Other (SPECIFY): \_\_\_\_\_

## F. TEXTURE

- ☐ 1=Hard  
☐ 2=Soft  
☐ 3=Other (SPECIFY): \_\_\_\_\_

## G. PHENOL REACTION (See instructions):

- ☐ 1=Ivory 4=Dark Brown  
☐ 2=Fawn 5=Black  
☐ 3=Light Brown Normal HWS

## H. SEED WEIGHT

- ☐ 4 ☐ 1 g/1000 seed (Whole number only)

## I. GERM SIZE

- ☐ 1=Small  
☐ 2=Midsize  
☐ 3=Large

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

**PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED**

- |  |   |
|--|---|
| <input type="checkbox"/> Stern Rust ( <i>Puccinia Graminis</i> f. sp. <i>tritici</i> ) | <input type="checkbox"/> Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> )                      |
| <input type="checkbox"/> Stripe Rust ( <i>Puccinia striiformis</i> )                   | <input type="checkbox"/> Loose Smut ( <i>Ustilago tritici</i> )   |
| <input type="checkbox"/> Tan Spot ( <i>Pyrenophora tritici-repentis</i> )              | <input type="checkbox"/> Flag Smut ( <i>Urocystis agropyri</i> )  |
| <input type="checkbox"/> Halo Spot ( <i>Selenophoma donacis</i> )                      | <input type="checkbox"/> Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )                        |
| <input type="checkbox"/> <i>Septoria nodorum</i> (Glume Blotch)                        | <input type="checkbox"/> Dwarf Bunt ( <i>Tilletia controversa</i> )   |
| <input type="checkbox"/> <i>Septoria avenae</i> (Speckled Leaf Disease)                | <input type="checkbox"/> Karnal Bunt ( <i>Tilletia indica</i> )   |
| <input type="checkbox"/> <i>Septoria tritici</i> (Speckled Leaf Blotch)                | <input type="checkbox"/> Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )                  |
| <input type="checkbox"/> Scab ( <i>Fusarium</i> spp.)                                  | <input type="checkbox"/> "Snow Molds"   |
| <input type="checkbox"/> "Black Point" (Kernel Smudge)                                 | <input type="checkbox"/> Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> Barley Yellow Dwarf Virus (BYDV)                              | <input type="checkbox"/> Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                 |
| <input type="checkbox"/> Soilborne Mosaic Virus (SBMV)                                 | <input type="checkbox"/> Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> )               |
| <input type="checkbox"/> Wheat Yellow (Spindle Streak) Mosaic Virus                    | <input type="checkbox"/> Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )          |
| <input type="checkbox"/> Wheat Streak Mosaic Virus (WSMV)                              | <input type="checkbox"/> Other (SPECIFY) _____  |
| <input type="checkbox"/> Other (SPECIFY) _____   | <input type="checkbox"/> Other (SPECIFY) _____  |
| <input type="checkbox"/> Other (SPECIFY) _____   | <input type="checkbox"/> Other (SPECIFY) _____  |
| <input type="checkbox"/> Other (SPECIFY) _____   | <input type="checkbox"/> Other (SPECIFY) _____  |

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)


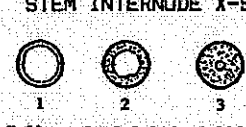
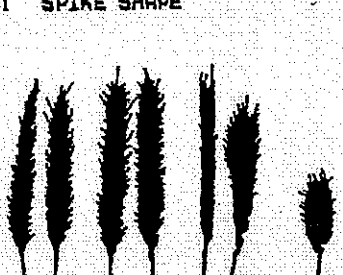
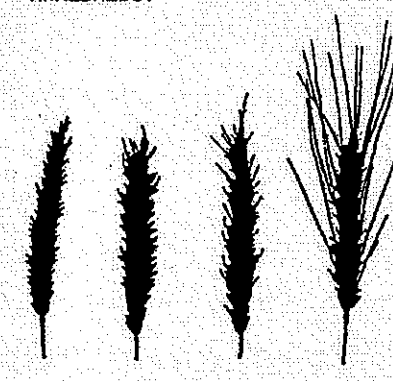
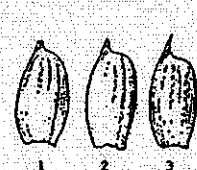
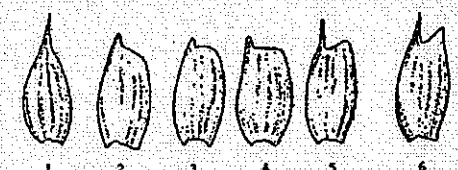


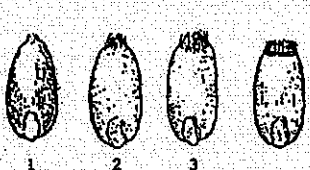
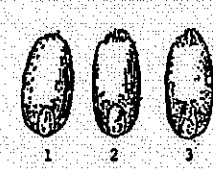

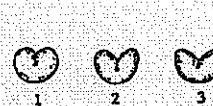
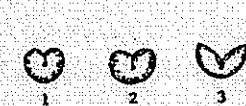
**PLEASE SPECIFY BIOTYPE (where needed)**

- |  |  |
|--|--|
| <input type="checkbox"/> Hessian Fly ( <i>Mayetiola destructor</i> )   | <input type="checkbox"/> Other (SPECIFY) _____ |
| <input type="checkbox"/> Stem Sawfly ( <i>Cephus</i> spp.)             | <input type="checkbox"/> Other (SPECIFY) _____ |
| <input type="checkbox"/> Cereal Leaf Beetle ( <i>Oulema malanopa</i> ) | <input type="checkbox"/> Other (SPECIFY) _____ |
| <input type="checkbox"/> Russian Aphid ( <i>Diuraphis noxia</i> )      | <input type="checkbox"/> Other (SPECIFY) _____ |
| <input type="checkbox"/> Greenbug ( <i>Schizaphis graminum</i> )       | <input type="checkbox"/> Other (SPECIFY) _____ |
| <input type="checkbox"/> Aphids  | <input type="checkbox"/> Other (SPECIFY) _____ |

**WHEAT DESCRIPTOR ILLUSTRATIONS**

Section numbers correspond to the numbers of the sections on the form.

200400244

<b>4 EARLY PLANT GROWTH HABIT:</b>  1 Prostrate 2 Intermediate 3 Erect	<b>10 STEM INTERNODE X-SECTION</b>  1 Hollow 2 Semi-Solid 3 Solid	<b>11 SPIKE SHAPE</b>  1 Tapering 2 Oblong 3 Clavate 4 Elliptical	
<b>11 AWNEDNESS:</b>  1 Awnless 2 Apically Awnless 3 Awnletted 4 Awned	<b>12 BEAK SHAPE:</b>  1 Obtuse 2 Acute 3 Acuminata	<b>12 SHOULDER SHAPE:</b>  1 Wanting 2 Oblique 3 Rounded 4 Square 5 Elevated 6 Apiculate	
<b>13 SEED SHAPE:</b>  1 Ovate 2 Oval 3 Elliptical	<b>13 CHEEK SHAPE:</b>  1 Rounded 2 Angular	<b>13 BRUSH SIZE:</b>  1 Small 2 Midsized 3 Large 4 Collared	<b>13 BRUSH HAIR LENGTH</b>  1 Short 2 Medium 3 Long
<b>GERM (EMBRYO) SIZE:</b>  1 Small 2 Midsized 3 Large	<b>13 SEED CREASE WIDTH:</b>  1 Narrow 2 Mid-Wide 3 Wide	<b>13 SEED CREASE DEPTH:</b>  1 Shallow 2 Mid-Deep 3 Deep	

**REFERENCE**

Briggle, L.W. and L.P. Reitz. 1963. Classification of Triticum Species and of Wheat Varieties Grown in the United States. Technical Bulletin 1278. United States Department of Agriculture.

## "Clear White"

**Exhibit D: Additional Description of the Variety****1) STATISTICAL COMPARISON WITH OTHER CALIFORNIA VARIETIES**

Data presented in Tables 1–8 were obtained from the Agronomy Progress Reports, University of California, Davis (L. Jackson et al. 2001-02, 2002-3 Regional barley, common and durum wheat, triticale, and oat performance tests in California, Agronomy Progress Report, UC Davis). For statistical analysis Year/Location combinations were used as blocks and the Year/Location \* Variety interaction was used as an estimate of the error term. Comparison between all possible pairs of means was performed using Tukey's Honest Significant Differences test (HSD) to control the experiment wise error rate.

**A) AGRONOMIC CHARACTERISTICS**

**a) Height.** The average height of Clear White when grown under irrigation was 92 cm in the Sacramento Valley and 96 cm in the San Joaquin Valley (Table 1). Clear White, Blanca Grande and Plata are not significantly different in height but these varieties are significantly taller than Klasic (Table 1).

**Table 1. Plant height** in cm. Sacramento and San Joaquin Valleys 2001-02 and 2002-03.

<b>Variety</b>	<i>Sac. Valley</i>	<i>San J. Valley</i>
Blanca Grande	92.6 A	99.5 A
Clear White	91.7 A	95.7 A
Plata	94.3 A	95.3 A
Klasic	79.3 B	86.5 B
HSD $p < 0.05$	6.9	6.8
Year/Location	7	6

\* Means with the same letter are not significantly different

**b) Heading date.** Heading time of Clear White is early season, approximately 2 days later than Klasic and Blanca Grande and approximately 4 days earlier than Plata (Table 2).

## "Clear White"

**Table 2. Heading date.** Days after 3/1 in Davis. Regional trials 2001-02 and 2002-03.

Variety	Year/Loc.	Mean
Plata	2	29.0 A
Blanca Grande	2	22.5 A
Clear White	2	24.5 A
Klasic	2	22.5 A
HSD ( $p < 0.05$ )		10.1

- Means with the same letter are not significantly different

**c) Shattering and Straw strength.**

**Shattering.** Clear White has better scores for shattering at maturity (smaller scores represent low shattering) than Klasic, Plata and Blanca Grande, but the differences were not significant ( $P > 0.05$ ) (Table 3, column 1).

**Straw strength.** Clear White showed the best score for lodging resistance. The lodging resistance of Clear White was significantly better than that of Klasic and Blanca Grande but not significantly different from Plata (Table 3, column 2).

**Table 3. Shattering and lodging scores from 2001-02 & 2002-03 regional trials.**

Variety	Shattering		Lodging
	Year / Locations	Mean score	Mean score
Plata	9	1.4 A	1.5 BC
Blanca Grande	9	1.3 A	2.4 AB
Clear White	9	0.9 A	1.3 C
Klasic	9	1.2 A	2.7 A
HSD $p < 0.05$		0.9	1.0

\* Means with the same letter are not significantly different. Shattering and lodging: 1=0-3%, 2=4-14%, 3=15-29%, 4=30-49%, 5=50-69%, 6=70-84%, 7=85-95%, 8=96-100%.

**d) Grain yield.** (Table 4.) Clear White has been evaluated throughout California during the 2002-03 growing seasons, but only under irrigated production in the Sacramento Valley and San Joaquin Valley during the 2001-2002 growing season. In the Sacramento Valley, the San Joaquin Valley and the rainfed trials of 2002-2003, the grain yield for Clear White was greater than Klasic and smaller than Blanca Grande and Plata, although none of these differences were significant ( $P > 0.05$ ).

**Table 4. Mean grain yield in lbs./acre from Regional Performance Tests (2001-02 & 2002-03 seasons) grouped by production areas.**



## "Clear White"

	Sacramento Valley	San Joaquin Valley	Rainfed environments
Clear White	4,550 AB	6,200 AB	1,827 A
Blanca Grande	5,511 A	6,815 AB	2,050 A
Plata	5,620 A	7,283 A	2,833 A
Klasic	3,295 B	5,471 B	1,667 A
HSD ( $p < 0.05$ )	1,896	1,363	1,927
Year/Locations	7	6	3

- Means with the same letter are not significantly different

**B) DISEASE REACTIONS**

a) **Septoria tritici blotch (STB).** Septoria was present only in two locations during these two years of trials. The two more susceptible varieties (Yecora Rojo and Brooks) were included for comparison. Clear White was consistently more resistant than the susceptible varieties Klasic, Yecora Rojo and Brooks. The disease resistance scores did not differ significantly from the scores in Blanca Grande, Plata and Klasic (Table 5). The Least Significant Differences test (LSD) showed that Clear White was significantly more resistant than Brooks ( $P < 0.05$ ). However, the differences among pairs of varieties were not significant using Tukey's Honest Significant Differences test (HSD), a more stringent test that controls the Experiment Wise Error Rate. These results suggest that there is a significant difference in resistance between Clear White and the most susceptible varieties, but that the more stringent test failed to detect them because of the low number of replications (the disease was found only in 2 locations).

**Table 5. Original scores for Septoria resistance (Regional trials 2002, 2003)**

Variety	Bute 02	Davis 02	Average	HSD	LSD
Clear White	1.0	1.0	1.0 A	A	A
Blanca Grande	1.0	1.0	1.0 A	A	A
Plata	1.0	1.0	1.0 A	A	A
Klasic	2.5	1.3	1.90 A	A	AB
Yecora Rojo	1.5	1.8	1.65 A	A	AB
Brooks	3.3	1.8	2.55 A	A	B

## "Clear White"

**b) Barley Yellow Dwarf Virus, Leaf Rust and Stripe Rust:**

**Barley Yellow Dwarf Virus** Clear White showed low infections of Septoria and BYVD during the two years of testing (Table 6).

**Leaf rust.** Clear White has excellent resistance to prevalent races of leaf rust in the Sacramento and San Joaquin Valleys. Clear White showed lower infection scores than Blanca Grande, Plata, and Klasic, but the differences were not significant (Table 6).

**Stripe rust.** A severe epidemic of stripe rust was observed during the 2002-2003 growing cycle in all the Central Valley. Clear White showed adequate levels of resistance to the multiple races of stripe rust detected in California. The infection scores of Clear White were significantly lower than those from Klasic and not significantly different from those observed in Plata and Blanca Grande (Table 6).

**Table 6. Leaf Rust, Stripe Rust, and Barley Yellow Dwarf Virus scores from SV and SJV Regional Performance Tests 2001-02 & 2002-03 seasons.**

<i>Variety</i>	<i>Barley yellow dwarf virus</i>	<i>Leaf rust</i>	<i>Stripe rust</i>
<b>Clear White</b>	<b>1.6 A</b>	<b>1.2 A</b>	<b>1.9 B</b>
Blanca Grande	1.3 A	2.5 A	1.2 B
Plata	1.3 A	2.8 A	1.0 B
Klasic	1.6 A	2.8 A	5.0 A
HSD ( $p < 0.05$ )	0.5	1.9	1.2
Year/Locations	6	10	15

\* Means with the same letter are not significantly different. Scale for disease resistance: 1=0-3%, 2=4-14%, 3=15-29%, 4=30-49%, 5=50-69%, 6=70-84%, 7=85-95%, 8=96-100%.

There was a significant negative correlation ( $r = -0.55$ ,  $n = 56$ ) between yield and stripe rust scores among the four varieties. This negative correlation was less evident in the resistant varieties Blanca Grande ( $r = -0.26$ ,  $n = 14$ ), Plata ( $r = -0.12$ ,  $n = 14$ ), and Clear White ( $r = -0.16$ ,  $n = 14$ ), than in the susceptible variety Klasic ( $r = -0.57$ ,  $n = 14$ ).

The smaller effect of stripe rust on yield in the resistant varieties was also demonstrated by the following analysis: for each of six locations we compared the differences in yield between the year with higher strip rust score minus the yield of the other year. We then averaged the differences among the six locations, to obtain an average effect of the strip rust infections. The susceptible variety Klasic showed a larger decrease in yield (2,852 lb reduction) than the resistant varieties Clear White, Plata and Blanca Grande (542-810 lb reduction).

"Clear White"

**Table 7. Effect Of Stripe Rust On Yield (Lb)**

<i>Variety</i>	<i>Yield difference</i>	<i>Strip Rust scores dif.</i>
<b>Clear White</b>	<b>-722</b>	<b>1.6</b>
Blanca Grande	-542	0.6
Plata	-810	0.5
Klasic	-2852	3.1

## "Clear White"

**2) MILLING AND BAKING DATA**

The California Wheat Commission Quality Laboratory and the Industry Collaborators provided the bread-making quality analyses.

**QUALITY**

**Grain characteristics.** The average test weight for Clear White from 17 locations/years was 62.3 lbs. and was not significantly different from the average test weight of Plata and Blanca Grande. Test weights from these three varieties were significantly higher than Klasic. Klasic was very susceptible to stripe rust, and the high disease pressure during the 2002-2003 growing season negatively affected its grain (Table 6, column 1).

Clear White kernels are hard, white, intermediate in length (5-7 mm), and with a long brush that extends partly over the sides of the kernel along the crease. The 1000-kernel weight of Clear White (41 mg) was not significantly different from Plata and Klasic, but was significantly lower than Blanca Grande (Table 6, column 2).

**Table 6. Test Weight (lbs/bu) and 1000 Kernels Weight (g). Regional Performance Tests in 2001-02 & 2002-03 seasons and ELITE tests 2002-2003.**

Variety	Test Weight (lbs/bu)	1000 Kernel Weight (g)
Clear White	62.3 A	41.0 BC
Blanca Grande	64.1 A	45.5 A
Plata	64.1 A	42.9 AB
Klasic	59.7 B	37.0 C
HSD (p<0.05)	2.5	4.0
Year/Locations	17	12

\* Means with the same letter are not significantly different

**Grain Protein Content.** The average grain protein content of Clear White from 12 locations was 12.3%, and was not significantly different from Plata and Klasic. However, it was significantly smaller than Blanca Grande (Table 7).

**Table 7. Grain protein content.** Percent grain protein (12% moisture basis) from SV and SJV Regional Performance Tests in 2001-02 & 2002-03 seasons.

Variety	Year / location	Mean (%)
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## "Clear White"

<b>CLEAR WHITE</b>	<b>12</b>	<b>12.3 BC</b>
Blanca Grande	12	13.0 A
Plata	12	12.1 C
Klasic	12	12.7 AB
HSD ( $p < 0.05$ )		0.6

\* Means with the same letter are not significantly different

**Breadmaking Quality.** The most important parameters describing breadmaking quality are presented in Table 8. Hardness values and water absorption of Clear White were identical to those observed in Plata and Klasic (Table 8). Clear White showed a good flour yield that was similar to Klasic and slightly higher than Plata and Blanca Grande. The mixing peak of Clear White was 7 minutes, lower than the values observed in Blanca Grande, Plata and Klasic. Clear White, along with Klasic, showed the highest loaf volume and received the best overall breadmaking score from the CWC Wheat Quality Lab (Table 8).

**Table 8. Breadmaking quality.** Values from Regional Performance Tests in 2001-02 & 2002-03 seasons and ELITE trials at UCD. (Source: CWC Quality Laboratory).

<i>Variety</i>	<i>Source</i>	<i>Hardness (relative units)</i>	<i>Water abs. (%)</i>	<i>Flour yield (%)</i>	<i>Mixing peak (min)</i>	<i>Loaf Vol. (cc)</i>	<i>Overall Score (1-5)</i>
<b>Clear White</b>	Davis (4reps)	69	59	71.5	7.3	910	4
	Kings Reg.	64	59	76.3	6.5	955	5
	Kings Elite	69	59	73.3	7.3	975	5
		<b>67</b>	<b>59</b>	<b>73.7</b>	<b>7.0</b>	<b>947</b>	<b>4.7</b>
Blanca Grande	Kings Reg.	<b>62</b>	<b>64</b>	<b>73.1</b>	<b>12</b>	<b>940</b>	<b>4</b>
Plata	Kings Reg.	67	59	72.3	10	915	4
	Collaborators 02	.	60	.	10.5	925	4
		<b>67</b>	<b>59.5</b>	<b>72.3</b>	<b>10.3</b>	<b>920</b>	<b>4</b>
Klasic	Davis	69	59	73.6	11.5	955	5
	Kings Reg.	69	61	73.7	12.5	960	5
	Kings Reg.	67	59	75.2	10	960	5
		<b>68</b>	<b>60</b>	<b>74.2</b>	<b>11.3</b>	<b>958</b>	<b>5</b>

## "Clear White"

\* Means with the same letter are not significantly different. No single LSD was available because of missing data.

**Noodle Quality.** Clear White presents a unique quality characteristic among the HWS varieties currently grown in California. This variety shows simultaneously good breadmaking and noodle quality characteristics. Besides the excellent breadmaking characteristics described above, this variety has low polyphenol oxidase activity (Fig. 1 Exhibit B), resulting in low discoloration of the noodles. All other HWS varieties currently grown in California have high level of polyphenol oxidase activity resulting in gray noodles.

"Clear White"

**Table 9 Comparison of Milling and Baking Qualities of 'Clear White' with Parent Strains 'Yecora Rojo' and 'Klasic'**

	Wheat Grain					Flour					Farinograph					Bread		
	Protein	Ash	Hard (NIR)	Test Wt	1000 Kwt	Yield	Protein	Ash	Fall No.	Wet Glut.	Absp	Air	Mix	MT	M.T.I.	Vol	Text	Score
<b>Cycle 2003</b>																		
Yecora Rojo	12.97	1.58	72	58.5	37.8	68.4	11.36	0.52	419	29.2	63.8	2	16	23.75	10	885	S	3
Klasic	12.58	1.56	67	62.3	43	70.1	11.02	0.42	439	28.9	59.4	1.75	9	18.75	40	855	S	3
Clear White	12.77	1.66	71	63	40.7	69.5	10.7	0.47	420	29.4	60	2	15	20	20	850	S	3
<b>Cycle 2002</b>																		
Yecora Rojo	12.4	1.52	74	64.2	44.5	72.2	10.9	0.37	378	30.1	58	2	3.5	8	50	925	S	4
Klasic	11.5	1.45	67	64.9	45.5	75.2	10	0.37	342	28.1	59.2	2	10	23.75	20	960	S	5
Clear White	11.8	1.47	64	65.1	46.3	76.3	10.6	0.43	292	29.6	59.2	2	6.5	13	30	955	S	5

Analysis provided by the California Wheat Commission Quality Laboratory, Woodland, CA

Pro = protein

Hard = NIR Hardness

Test WT = Test weight(lb/bu)

1000 Kwt = Thousand kernel weight (grams)

Yield = Flour

yield (%)

Fall No. = Falling Number (seconds)

Wet Glut = Wet gluten(% , 14% moisture basis)

Absp = Absorption (%)

Arr = Arrival (min)

Mix Pk = mixing peak (min)

MT = Stability of farinograph curve, departure - arrival (min)

M.T.I. = Mixing tolerance index (B.U)

Vol = Bread volume (c.c.)

Tex = Grain and texture (E=excellent, S=Satisfactory, Q=Questionable, U=Unsatisfactory)

Score: 5=Excellent, 4=Satisfactory, 3=Satisfactory to questionable, 2=Questionable, 1=Unsatisfactory

200400244

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S)  The Regents of the University of Calif.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  UC 1361	3. VARIETY NAME  Clear White
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) University of California 1111 Franklin Street, 12th Floor Oakland, CA 94607-5200	5. TELEPHONE (Include area code)  (510) 587-6000	6. FAX (Include area code)  (510) 587-6090
7. PVPO NUMBER  200400244		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☒ YES ☐ NO

10. Is the applicant the original owner?

☒ YES☐ NOIf no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES☐ NO

If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES☐ NO

If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

Breeders are employees of applicant/owner.

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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